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Tomoya Nakatani

Q94075

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

BOHATY, ANDREW K

ART UNIT

PAPER NUMBER

1786

NOTIFICATION DATE

DELIVERY MODE

10/19/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com
PPROCESSING@SUGHRUE.COM
USPTO@SUGHRUE.COM

DETAILED ACTION

1. This Office action is in response to the amendment filed September 9, 2010, which amends claims 1, 4, and 9 and cancels claims 2 and 3. Claims 1, 4-10, and 15-27 are pending.

Response to Amendment

2. The applicant's cancellation of claims, filed September 9, 2010, has caused the withdrawal of the rejection of claims 2 and 3 under 35 U.S.C. 103(a) as being unpatentable over Oguma et al. (EP 1344788) as set forth in the Office action mailed March 16, 2010.

3. The applicant's amendment of the claims and cancellation of the claims, filed September 9, 2010, has caused the withdrawal of the rejection of claims 1-10 and 15-27 under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (US 2003/0168656) in view of Oguma et al. (EP 1344788)) as set forth in the Office action mailed March 16, 2010.

4. The applicant's cancellation of the claims, filed September 9, 2010, has caused the withdrawal of the provisional rejection of claims 2, 3, and 11-14 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9, 23-26, and 28-30 of copending Application No. 10/532,937 in view of applicant's admitted prior art as set forth in the Office action mailed March 16, 2010.

Response to Arguments

5. Applicant's arguments filed September 9, 2010 have been fully considered but they are not persuasive.

6. Regarding the applicant's arguments on pages 13-17 that the polymer taught by Oguma fails to explicitly disclose a polymer compound having a repeating unit represented by present formula (3). The polymers taught by Oguma suggest the incorporation of a repeating unit that meets applicant's formula (3) (paragraph [0056]-[0060] and [0063]-[0071], formula (5), repeating unit 31). Furthermore, the polymers taught by Oguma and the polymer taught by the applicant are both used in the same way (light emitting polymers) and have similar size and emit light from the triplet state; therefore, the burden shifts to the applicant so show that claimed polymer has unexpected results.

7. In response to the applicant's argument that Oguma broadly teaches a polymer light emitting material which comprises a polymer compound that can be composed of a variety of repeating units, the examiner submits applicant's claims are also broad. Hundreds of compounds are within the general formulas due to the various possible variables and substitution groups on the variables groups. The applicant's have not shown results which are commensurate in scope with the breadth of the claimed subject matter and are also not commensurate with the prior art, Oguma. The lack of examples is not considered sufficient in number or scope to clearly overcome the obviousness rejection over Oguma.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1, 4-10, and 15-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oguma et al. (EP 1344788) (hereafter "Oguma").

11. With respect to claims 1, 4, 5 and 15, Oguma teaches a polymer light emitting material which comprises a polymer compound and a compound that emits light from the triplet state (paragraphs [0056]-[0060], [0140], and [0144]). Oguma teaches that the polymer can have a polystyrene reduced number average molecular weight of 10^3 to 10^8 (paragraph [0004]). Oguma teaches that the polymer can be composed of a variety of repeating units (paragraph [0056]-[0060] and [0063]-[0070], formula (5), compounds 29-32). Oguma teaches repeating unit 31, which reads on applicant's formula 1 where Ar^1 and Ar^2 are phenyl and X^1 and X^2 are both $C(R^1)(R^2)$. Oguma teaches that each be a different substituent (paragraph [0070]). Furthermore, Oguma teaches that any

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carbon atom can be substituted with a nitrogen atom, sulfur atom, or oxygen (paragraph [0071]). If the one of the two $C(R^1)(R^2)$ in repeating unit 31 is replaced with an oxygen atom this would read on applicant's formulae 3 and 4, where X is oxygen. Oguma further teaches that the compound that emits light from the triplet state can be a metal compound complex (paragraph [0144]).

12. Oguma does not specifically teach a polymer that has a repeating unit that meets applicant's formula (1) where X^1 and X^2 are different and applicant's formula (4).

13. As described above Oguma does teach that the R groups in repeating unit 31 can be different (paragraph [0070]) and that one of the $C(R^1)(R^2)$ can be replaced with an oxygen atom (paragraph [0071]). Oguma teaches that these polymers can be used as a light-emitting material or a charge transporting material and used produce a polymer light-emitting device (paragraph [0003]).

14. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a polymer that comprising a repeating unit of Oguma's 31, where either the R groups on the two $C(R^1)(R^2)$ are different, or one of the $C(R^1)(R^2)$ is replaced with an oxygen atom. The motivation would have been to make a polymer that can be used as a light-emitting material or a charge transporting material and used produce a polymer light-emitting device.

15. With respect to claim 6, Oguma teaches the polymer light emitting material further having a repeating unit represented by the following applicant's formula (5), (6), (7) or (8) (paragraphs [0056]-[0058], formulae (5)-(6)).

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16. With respect to claim 7, Oguma teaches the polymer light emitting material where applicant's formula (5) is a repeating unit represented by the following applicant's formula (9), (10), (12), (13) or (14) (paragraphs [0070]-[0072], formulae (7), (8), and (10)-(12)).

17. With respect to claim 8, Oguma teaches the polymer light emitting material where the repeating unit represented by the above defined applicant's formula (5) is a repeating unit represented by applicant's formula (15) (paragraph [0073], formula (13)).

18. With respect to claim 9, Oguma teaches that the polymer comprises a repeating unit of formula (1-1) or (1-2) and other repeating units, which include repeating unit 31 (paragraphs [0055]-[0060]). Oguma teaches that the amount of formula (1-1) or (1-2) can be from 1% to 100% by mole. This would mean that the amount of the other repeating unit can be from 0% to 99% by mole.

19. Oguma does not specifically teach where the mole percent of the repeating unit 31 in the polymer is 10 % or more by mole.

20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to the amount of repeating unit 31 in the polymer to be 10% to 99% by mole. It would be obvious to optimize the amount of the repeating unit in the polymer to obtain the desired performance.

21. With respect to claim 10, Oguma teaches the polymer light emitting material further including a light emitting material (paragraphs [0056]-[0058] and [0065]-[0069], formula (5), compounds 126-132).

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22. With respect to claims 16 and 17, Oguma teaches an ink composition comprising a polymer light emitting material and the ink composition has a viscosity of 1 to 100 mPa·s at 25°C (paragraphs [0150] and [0153]).

23. With respect to claim 18, Oguma teaches a light emitting thin film comprising a polymer light emitting material (paragraph [0134]).

24. With respect to claim 19, Oguma teaches a conductive thin film comprising a polymer light emitting material (paragraph [0133]).

25. With respect to claim 20, Oguma teaches an organic semiconductor thin film comprising a polymer light emitting material (paragraph [0133]).

26. With respect to claim 21, Oguma teaches a polymer light emitting device having a layer comprising a polymer light emitting material between electrodes consisting of an anode and a cathode (paragraph [0136]).

27. With respect to claim 22, Oguma teaches the polymer light emitting device where the light emission layer further comprises a hole transporting material, an electron transporting material or a light-emitting material (paragraph [0139]).

28. With respect to claim 23, Oguma teaches a flat light source comprising a polymer light emitting device (paragraph [0195]).

29. With respect to claim 24, Oguma teaches a segment display comprising a polymer light emitting device (paragraph [0195]).

30. With respect to claim 25, Oguma teaches a dot matrix display comprising a polymer light emitting device (paragraph [0195]).

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31. With respect to claim 26, Oguma teaches a liquid crystal display comprising a backlight composed of a polymer light emitting device (paragraph [0195]).

32. With respect to claim 27, Oguma teaches an illumination comprising a polymer light emitting device (paragraph [0197]).

Double Patenting

33. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

34. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

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be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

35. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

36. Claims 1, 4-10, and 15-27 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9, 23-26, and 28-30 of copending Application No. 10/532,937 (Doi et al.) (hereafter "Doi") in view of applicant's admitted prior art (hereafter "AAPA"). Although the conflicting claims are not identical, they are not patentably distinct from each other.

37. Regarding claim 1 of the instant application, with respect to claim 3 of Doi, Doi claims a polymer light emitting material which contains a polymer compound comprising a repeating unit of the following formula (1) and having a polystyrene-reduced number-average molecular weight of 10^3 to 10^8 , wherein Ar^1 and Ar^2 each independently represent a trivalent aromatic hydrocarbon group or a trivalent heterocyclic group; X^5 each independently represent O, S, C(=O), S(=O), SO₂, Si(R³)(R⁴), N(R⁵), B(R⁶), P(R⁷) or P(=O)(R⁸), (wherein R¹, R², R³, R⁴, R⁵, R⁶, R⁷ and R⁸ each independently represent a hydrogen atom, halogen atom, alkyl group, alkyloxy group, alkylthio group, aryl group, aryloxy group, arylthio group, arylalkyl group, arylalkyloxy group, arylalkylthio group, acyl group, acyloxy group, amide group, acid imide group, imine residue, amino group, substituted amino group, substituted silyl group, substituted silyloxy group, substituted

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silylthio group, substituted silylamino group, monovalent heterocyclic group, heteroaryloxy group, heteroarylthio group, arylalkenyl group, arylolefinyl group, carboxyl group, alkoxycarbonyl group, aryloxycarbonyl group, arylalkyloxycarbonyl group, heteroaryloxycarbonyl group or cyano group; (R^1 and R^2) or (R^3 and R^4) may mutually be connected to form a ring).

38. Doi does not claim a polymer light emitting material which exhibits light emission from the triplet excited state.

39. In the specification Doi teaches a polymer light emitting material which exhibits light emission from the triplet excited state (paragraphs [0071] and [0079]-[0081]) to produce a new polymer compound having strong light emission strength (paragraph [0003]).

40. Given the teachings of Doi in the specification it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the polymer complex compound, of Doi, wherein the polymer light emitting material exhibits light emission from the triplet excited state to arrive at the claimed invention. One of ordinary skill in the art would have been motivated to produce a new polymer compound having strong light emission strength.

41. Regarding claim 4 of the instant application, with respect to claim 4 of Doi, claim 4 only differs from claim 4 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 4 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

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42. Regarding claim 5 of the instant application, with respect to claim 5 of Doi, claim 5 only differs from claim 5 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 5 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

43. Regarding claim 6 of the instant application, with respect to claim 6 of Doi, claim 6 only differs from claim 6 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 6 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

44. Regarding claim 7 of the instant application, with respect to claim 7 of Doi, claim 7 only differs from claim 7 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 7 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

45. Regarding claim 8 of the instant application, with respect to claim 8 of Doi, claim 8 only differs from claim 8 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 8 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

46. Regarding claim 9 of the instant application, with respect to claim 9 of Doi, claim 9 only differs from claim 9 of Doi for the same reasons claim 1 of the instant application

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differs from claim 1 of Doi as described above. Therefore, claim 9 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

47. Regarding claim 10 of the instant application, with respect to claim 23 of Doi, claim 10 only differs from claim 23 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 23 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

48. Regarding claim 15 of the instant application, with respect to claim 1 of Doi, claim 15 only differs from claim 1 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 1 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

49. Regarding claim 16 of the instant application, with respect to claim 24 of Doi, claim 16 only differs from claim 24 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 24 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

50. Regarding claim 17, Doi does not claim the ink composition according to claim 16 having 1 to 100 mPa·s of viscosity at 25°C.

51. In the specification Doi teaches the ink composition according to claim 16 having 1 to 100 mPa·s of viscosity at 25°C (paragraph [0250]) to produce a new polymer

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compound having strong light emission strength and a polymer light-emitting device using said polymer compound (paragraph [0003]).

52. Given the teachings of Doi in the specification it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the ink composition, of Doi, wherein the ink composition would have a viscosity of 1 to 100 mPa·s at 25°C to arrive at the claimed invention. One of ordinary skill in the art would have been motivated to produce a new polymer compound having strong light emission strength and a polymer light-emitting device using said polymer compound.

53. Regarding claim 18 of the instant application, with respect to claim 25 of Doi, claim 18 only differs from claim 25 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 25 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

54. Regarding claim 19 of the instant application, with respect to claim 25 of Doi, claim 19 only differs from claim 25 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 25 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

55. Regarding claim 20 of the instant application, with respect to claim 25 of Doi, claim 20 only differs from claim 25 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 25 of Doi

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would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

56. Regarding claim 21 of the instant application, with respect to claim 26 of Doi, claim 21 only differs from claim 26 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 26 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

57. Regarding claim 22 of the instant application, with respect to claim 28 of Doi, claim 22 only differs from claim 28 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 28 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

58. Regarding claim 23 of the instant application, with respect to claim 29 of Doi, claim 23 only differs from claim 29 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 29 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

59. Regarding claim 24 of the instant application, with respect to claim 29 of Doi, claim 24 only differs from claim 29 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 29 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

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60. Regarding claim 25 of the instant application, with respect to claim 29 of Doi, claim 25 only differs from claim 29 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 29 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

61. Regarding claim 26 of the instant application, with respect to claim 30 of Doi, claim 26 only differs from claim 30 of Doi for the same reasons claim 1 of the instant application differs from claim 1 of Doi as described above. Therefore, claim 30 of Doi would be modified in the same obvious manner as claim 1 above to arrive at the claimed invention.

62. Regarding claim 27, Doi does not claim an illumination comprising a polymer light emitting device according to any of claims 21 to 22.

63. In the specification Doi teaches an illumination comprising a polymer light emitting device according to any of claims 21 to 22 (paragraphs [0231] and [0295]-[0297]) to produce a new polymer compound having strong light emission strength and a polymer light-emitting device using said polymer compound (paragraph [0003]).

64. Given the teachings of Doi in the specification it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify a polymer light emitting device according to any of claims 21 to 22 to be used an illumination device to arrive at the claimed invention. One of ordinary skill in the art would have been motivated to produce a new polymer compound having strong light emission strength and a polymer light-emitting device using said polymer compound.

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65. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

66. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

67. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

68. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew K. Bohaty whose telephone number is (571)270-1148. The examiner can normally be reached on Monday through Thursday 7:30 am to 5:00 pm EST and every other Friday from 7:30 am to 4 pm EST.

69. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571)272-1515. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

70. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K. B./
Andrew K. Bohaty
Patent Examiner, Art Unit 1786

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art
Unit 1786